Yellow Creek Produced Water Treatment Facility Project - BOPCO, L.P.

Plan of Development (POD)

10/13/11

1. Purpose and Need

The purpose of the proposed BOPCO, L.P. (BOPCO) Yellow Creek Produced Water Treatment Facility (PPWTF) project is to treat produced water from BOPCO's Yellow Creek natural gas field and surface discharge clean treated water to Yellow Creek. The water treatment system is required to dispose of up to 24,000 barrels of produced water per day from the natural gas field development. The water treatment system will consist of existing buried water pipelines for transport and reuse of water within the field, and new construction of 1) a modular facility and associated structures at the PPWTF site; 2) new pipelines to connect the field to the PPWTF and to conduct the treated water to the outfall; 3) the discharge outfall structure; and 4) a power line to provide electricity to the PPWTF.

2. Proposed Facilities

a. Yellow Creek Produced Water Treatment Facility

BOPCO proposes to construct and place into service a PPWTF in Section 25, T1N, R98W 6th P.M. in Rio Blanco County, Colorado (see attached **Sheets 1and 3**). The proposed 6-acre facility will be located on BLM-administered federal land. The PWTF will process up to 24,000 barrels of produced water that is a bi-product of natural gas production from BOPCO's Yellow Creek field. With project approval, an initial 6,000-barrel water treatment unit or module will be installed and begin treating the field's produced water. The 24,000-barrel capacity for the treatment facility will be reached incrementally over time with the subsequent addition of 6,000 barrel treatment modules. BOPCO anticipates the modules to be added as drilling and production of the Yellow Creek Field expands both natural gas production and produced water volumes.

Processed water from the treatment process will be discharged to the surface at an outfall to Yellow Creek located on Bureau of Land Management (BLM) acreage (Section 25, T1N, R98W). BOPCO has received a permit (Permit No. CO0048739) to discharge to Yellow Creek at the location identified in **Sheets 1 and 3.**

b. Pipelines ROW

To support initial and long-term treatment capacity of produced water, the Yellow Creek field's existing buried water gathering pipeline system will need to be extended to the proposed PWTF from the existing buried pipeline terminus located at the Yellow Creek Gas Plant (YCGP)

(Section 1, T1S, R98W)(**Sheet 1**). Between the Yellow Creek Gas Plant and the proposed PWTF, BOPCO will install 2 buried water pipelines, 4 to 6 inches in diameter, and 2 welded steel natural gas pipelines within an 8-foot wide trench (**Sheet 2**). One water line will be utilized for the conveyance of produced water to the PWTF from the tie-in with the gathering system terminus at the YCGP, and the second water line will be installed for transferring the concentrated brine to disposal wells. Both welded steel natural gas lines will be installed to accommodate future natural gas development in the northeast portion of the Yellow Creek Federal unit.

The proposed pipelines ROW will parallel and be adjacent to the west side of the proposed 25-foot wide WREA power line ROW which in turn will parallel and be adjacent to the existing Rio Blanco County Road (CR) 20 60-foot wide ROW that connects the existing YCGP and proposed PWTF location (**Sheet 1 and 2**). To minimize new disturbance, approximately 15 feet of the 60-foot ROW will overlap with the proposed 25-foot wide power line ROW CR 20's ROW and this area will likely support the working side of the ROW during construction. The 8-foot wide trench containing the pipelines will be located within the remaining 45 feet of construction ROW and its edge will be 23.5 feet from the proposed utility/power line. No temporary work area extending outside the proposed 60-foot wide pipeline ROW is proposed and 25-foot wide power line ROW; any needed storage or work area will be located at either the YRGP or the PWTF. The proposed alignments and positioning of the linear facilities including overlaps of ROW among the pipeline, power line, and county road facilities are presented in **Sheets 1 and 2**. Those portions of the pipelines' and power line's construction ROWs including the construction overlap of 10 feet within CR 20's ROW as well as the remainder of the disturbed portions of the ROW on BLM and CPW lands will undergo final reclamation or restoration of existing conditions following the sequential construction of the pipelines followed by the power line.

The length of the proposed pipelines' ROW and the 4 proposed pipelines is approximately 7,300 feet (1.4 miles)(Sheet 1). Approximately 1,225 feet (0.25 mile) will cross BLM-administered federal surface; the remaining 6,075 feet (1.2 miles) will cross state lands administered by the CPW as units of the Piceance Creek State Wildlife Area. BOPCO will submit application to CPW for a Temporary Special Use Agreement to permit construction and operation of a pipeline ROW for water and natural gas pipelines.

In addition to the 2 water lines, BOPCO will install within the same trench 2 welded steel natural gas pipelines, an 8-inch steel high pressure line and a 16-inch steel low pressure line. Neither natural gas pipeline will be placed into service until field development in the northeast portion of the field is achieved. The 2 natural gas pipelines will be installed at the same time as the water pipelines to optimize construction efficiencies and to avoid subsequent new and re-disturbance. The pipelines will be installed prior to installation of the proposed power line.

c. Power Line ROW

The PWTF will require electric power. BOPCO proposes to contract with White River Electric Association (WREA) to install an overhead 3-phase electrical, medium voltage transmission line from the YCGP north, along and on the immediate west side of CR 20 to the PWTF site (**Sheet 1 and 2**). WREA will submit a separate ROW application and supporting POD to the BLM in the near future. The power line's anticipated 25-foot wide construction ROW will parallel and overlap 15 feet with the proposed pipeline construction ROW to the west and will parallel and overlap 12.5 feet with the existing CR 20 ROW. The anticipated length of the power line will be approximately 7,845 feet (1.5 miles). Approximately 2,155 feet (0.4 mile) of the proposed power line ROW will cross BLM-administered federal surface; the remaining 5,690 feet (1.1 miles) will cross state lands administered by the CPW as units of the Piceance Creek State Wildlife Area. BOPCO and/or WREA will submit application to CPW for a Temporary Special Use Agreement to permit construction and operation of a power line.

3. Alternatives Considered

BOPCO considered other methods for disposal of produced water including trucking to an approved disposal facility and deep well injection:

- BOPCO evaluated trucking/hauling produced water to commercial disposal sites in both Colorado and Utah. This alternative was considered but is not proposed due to the excessive fiscal and environmental costs associated with increased truck traffic, disposal costs, and possible increased dust. In the past, BOPCO hauled produced water off-site, and when this became too costly, BOPCO permitted the first injection well at the YCF 4-16-1 location. Currently, an additional new injection permit for the YCF 1-41-1 location is in process with the Colorado Oil and Gas Conservation Commission (COGCC).

- Deep well injection of produced water was considered but this alternative was determined to not be viable due to uncertainty regarding the capacity of the geologic formations evaluated to date. BOPCO is currently disposing of water into the Sego formation at the YCF 4-16-1 location. This well has a current capacity to inject 7,000 barrels of fluid. The YCF 1-41-1 has also been tested for injection but has not yet been placed into service, nor has capacity been determined. In any event, the total capacity of the two injection wells will not support the proposed full field development produced water volumes of 24,000 barrels per day. These disposal wells will, however, adequately handle the proposed concentrated brine volumes from the PWTF for the life of field production.

BOPCO considered other locations for the PWTF:

- BOPCO considered installation of the PWTF at the YCGP; however, existing space was determined to be inadequate to support the additional facilities (modules) and ancillary structures. Expansion of the plant site was not considered feasible due to constraints to

expansion posed by the site's close proximity to CR 20 ROW, steep slopes, and drainage channels.

- An alternative site for the PWTF was also considered in Section 25, and adjacent to the proposed 6-acre PWTF location, on the east side of CR 20 and within a tributary drainage to Yellow Creek. This alternative was eliminated from consideration due to the location's proximity to and potential overlapping of mapped potential suitable habitat for Threatened and Endangered plants and due to the likely need to create steep cut slopes in order to provide sufficient leveled space to accommodate the PWTF.

4. Right-of-way Location

    a. Legal description

    Water Treatment Facility (PWTF)

    Township 1 North, Range 98 West

    Section 25: Center - SWNE, SENW, NESW

    Pipeline & Electrical Power Line ROWs

    Township 1 South, Range 98 West

    Section 1: NENW

    Township 1 North, Range 98 West

    Section 36: SESW, SWSW, NESW, SENW, NENW

    Township 1 North, Range 98 West

    Section 25: SESW, NESW

    b. Acres of Disturbance by Land Status

    Water Treatment Facility (PWTF)

    BOPCO requests an approximately 6-acre parcel on BLM to accommodate the full build-out of this PWTF. BOPCO intends to optimize the use of this parcel by accommodating a working trailer, chemical and material storage, truck delivery turnaround, and temporary storage/staging area for pipeline construction in addition to the location for the PWTF modules.

    Pipelines ROW

7,300 feet of 60-foot wide construction ROW results in 10.1 acres of disturbance:

Approximately 1,225 feet of pipelines 60-foot wide ROW will cross BLM lands resulting in new and re-disturbance of approximately 1.7 acres.

Approximately 6,075 feet of pipelines 60-foot wide ROW will cross CPW lands resulting in a disturbance of approximately 8.4 acres.

Power Line ROW

7,845 feet of 25-foot wide construction ROW results in 8.3 acres of disturbance:

Approximately 2,155 feet of power line 25-foot wide ROW will cross BLM lands resulting in a disturbance of approximately 1.2 acres.

Approximately 5,690 feet of power line 25-foot wide ROW will cross CPW lands resulting in a disturbance of approximately 3.3 acres.

The proposed acres of disturbance by land ownership/status are summarized in **Table 1**.

Table 1. Summary of Disturbance Acreages by Ownership for the Yellow Creek R/O Project and by Each Project Facility

	Project Facilities		
Ownership/Status	**PWTF**	**Pipelines**	**Power Line**
BLM-administered	6 acres	1.7 acres	1.2 acres
Colorado DOW	---	8.4 acres	3.3 acres
Subtotal	6 acres	10.1 acres	4.5 acres
Total Disturbance	20.6 acres		

Overlapping Construction ROWs

Due to overlapping of construction ROWs among the pipeline, power line, and CR 20 (**Sheet 2**), new disturbance for the 2 ROWs will be reduced to

approximately 9.6 acres (57.5 feet of new disturbance within ROWs) where the 3 ROWs parallel each other for approximately 7,300 feet. This analysis assumes that the entire 60-foot wide CR 20 ROW was previously disturbed. The additional 545 feet of power line 25-foot wide ROW that extends south and east around the YCGP will add approximately 0.3 acres of new disturbance. With the addition of the 6 acres of disturbance for the PWTF, the total estimate for new disturbance will be approximately 15.9 acres. The overlap of construction ROWs saves approximately 4.7 acres of new disturbance.

5. Facility Design Factors

    a. Yellow Creek Produced Water Treatment Facility (PWTF)

The proposed PWTF will treat produced water generated from BOPCO's Yellow Creek natural gas production operations and has been specifically designed to meet surface discharge permitting limits established by the Colorado Department of Public Health and Environment (CDPHE) for the affected portion of Yellow Creek. The positive results of an approved (Sundry Notice June 8, 2010) and recently completed pilot test (November 15, 2010) have lead to the design and permitting of an operational PWTF. The proposed proprietary treatment (OPUS ™ II Technology) consists of multiple treatment processes including degasification, ceramic membrane filtration, ion exchange softening, cartridge filtration, and patented high pH reverse osmosis (RO) technologies. Veolia North America Water Systems conducted the pilot test of the OPUS ™ II Technology and will be the contractor to construct, operate and maintain the PWTF. Detailed descriptions of the water treatment process are presented as **Attachment A** to this POD. **Attachment A** is the Colorado Discharge Permit System (CDPS) Fact Sheet to Permit Number CO0048739 - BOPCO, L.P., Yellow Creek Produced Water Management Facility, Rio Blanco County.

The proposed treatment technology will achieve approximately 75 percent overall system recoveries based on the influent feed water quality and temperature. Clean water to be surface discharged into Yellow Creek from treatment of a projected maximum (full build out) daily 24,000 barrels of produced water will be approximately 18,000 barrels (75 percent of influent). Within the boundaries of the 6-acre PWTF site, treated water will be conveyed from the PWTF in a buried 10-inch poly pipe to an engineered/armored discharge structure adjacent to Yellow Creek's channel (**Sheets 1 and 3**). Concentrated brine/RO reject water is expected to total approximately 6,000 barrels (25 percent of influent) per day. The brine solution is to be conveyed by a 4 to 6 inch pipeline (the second water pipeline in the project's proposed pipeline ROW) to be installed for transferring the concentrated brine to deep disposal injection wells [YCF 4-16-1 and YCF-41-1 (permit application pending)]. Residual dry filter cake will be trucked to an approved solid landfill for disposal.

Development of the PWTF is anticipated in phases with an initial installation and operation of the first RO module capable of treating 6,000 barrels per day with future phases of added treatment capacity being added in 6,000-barrel increments. Current plans for development of the

Yellow Creek Gas Field do not warrant the immediate installation of the all four treatment modules (24,000 barrels) with project approval. The pace of development and installation of treatment modules will be contingent on the price of natural gas and the rate of return on drilling investment. Project-specific diagrams, drawings, and specifications will be developed and provided to the BLM and CPW following PWTF and pipeline design, engineering, staking, and survey.

The treatment modules will be prefabricated off-site, transported by truck to the site, and assembled on location. Within the 6-acre PWTF site, construction activities will be conducted for the following types of facility components: concrete foundations, structural steel, containerized systems, tanks, process and utility piping, electrical equipment, raceways and wiring, and instrumentation and control systems. BOPCO anticipates surfacing the remaining parts of the site not occupied by facilities with gravel that will be obtained from a local or regional commercial source.

b. Pipelines

The 2 buried 4- to 6-inch water pipelines to be installed in the single 8-foot wide trench will be poly or flexpipe (**Sheet 2**). The poly pipe will be rated to 1,500 psi MAOP. The 8-inch high pressure line and the 16-inch low pressure line will also be installed in the same 8-foot wide trench. Pipe used for both steel natural gas pipelines will have wall thicknesses of 0.188 inches and both will be rated at 1,440 psi MAOP. The buried steel pipelines will be protected by passive cathodic protection. Pigging stations for the pipelines will be installed at the PWTF to facilitate pigging between the PWTF and the existing stations at the YCGP.

Both water and natural gas pipelines will be buried to a minimum depth of 4 feet from surface to top of pipe (**Sheet 2**). BOPCO proposes use of a single temporary work area for staging construction of the pipelines; this temporary work and storage area will be located within either the YCGP facility or the 6-acre PWTF. No additional ground disturbance is anticipated for pipe storage.

c. Power Line

The design for the proposed electrical transmission line will be described in WREA's forthcoming detailed POD for the installation and operation of the electrical power line between the YCGP and the proposed PWTF. The power line POD will address engineering for support structures, conductors, and spans between structures; access from CR 20; ROW clearing and grading; reclamation; and future maintenance activities. Preliminary design features projected for the construction of the proposed pipeline that are consistent with the power line ROW features presented in **Sheets 1 and 2** are:

- The power line will be a Three-phase Y (4 Wire) 24.9-kV Primary

- Wires will be supported by RUS Cross-arm Design (raptor friendly) mounted on 40-foot poles (6 feet buried, 34 feet above ground) spaced on average 275 feet apart.
- The power line will be located along an alignment that provides 19-foot spacing from the edge of CR 20 and 23.5-foot spacing from the edge of the pipeline trench (**Sheet 2**).
- Construction of the power line after completing the installation of the 4 pipelines is expected to employ a 5-man crew over an approximate period of one month. Anticipated vehicle/equipment requirements are to include use of 2 standard line trucks, a 2-ton digger truck, and a bucket. A digging back-hoe may also be used.

6. Additional Components of the ROW

The water pipeline within the proposed ROW will connect into the existing produced water gathering system for the conveyance of gathered produced water to the PWTF. Existing water pumps for the gathering system will move water through the new segment to the PWTF. The second water line will be used to convey concentrated brine to the existing disposal wells. The 2 natural gas pipelines will be an extension of the existing gas gathering system whose terminus is the YCGP.

7. Government Agencies Involved

    a. Bureau of Land Management

    b. U.S. Fish and Wildlife Service

    c. U.S. Army Corps of Engineers

    d. Colorado Department of Natural Resources - Division of Wildlife

    e. Colorado Department of Public Health and Environment

    f. Rio Blanco County

8. Construction of Facilities

    a. Yellow Creek Produced Water Treatment Facility (PWTF)

On the PWTF's cleared, leveled, surfaced, and fenced 6-acre site, the 6,000-barrel contained modules of treatment equipment will be transported via truck/semi-tractor-trailer and off-loaded for installation and connections to ancillary equipment. The modules for the initial 6,000-barrel treatment phase and the subsequent 3 proposed modules will each require approximately 18 months to construct prior to delivery to the PWTF site. The contained modules are to include, but not limited to (inside the enclosed unit):

- Filtration membranes

- Chemical skids
- Chemical pumps
- Reverse osmosis equipment
- Monitoring equipment

Ancillary equipment to be installed on site will include water storage tanks, pumps and associated filters for reuse of produced water in the field, discharge line to outtake point, a personnel office, a telemetry assembly/small tower (12 to 18 feet tall), and equipment storage sheds.

The projected workforce to construct the PWTF site, to install the water treatment modules/equipment, and to install the discharge pipeline and outfall structure is estimated to be 20 workers. The workforce needed to install subsequent phases of the PWTF will drop to approximately 12 workers. Construction and installation of the PWTF and pipeline/outfall on site is expected to require approximately 45 days for the first phase; subsequent phase installations of water treatment modules will each require approximately 30 days. Roundtrips for large trucks/semis are estimated to be 5 for the initial phase; 3 for the PWTF modules and 2 for the discharge pipeline and outfall. Subsequent phases will likely each require 3 roundtrips for large trucks/semis. Approximately 15 roundtrips per day by smaller trucks and worker pickups/cars are estimated for the initial PWTF modules' installation and discharge pipeline/outfall construction; approximately 8 smaller vehicle roundtrips per day will likely be needed during subsequent phases of treatment module installation.

b. Pipelines

The 2 water pipelines and the 2 natural gas pipelines will be constructed within the proposed ROW between the YCGP and PWTF along the east side of the ROW for CR 20. Excavated topsoil will be windrowed separately from the underlying subsoil and stored along the road until the trench is backfilled. All pipelines will be buried to a minimum depth of 4 feet. The pipeline trench will be excavated mechanically; pipe segments will be welded (if steel) or connected (if poly) together and tested, lowered into the trench and padded and covered with appropriate padding material and excavated trench spoil material, respectively. Generally, one mile of pipeline can be constructed and installed in 4 to 7 days. Project-specific diagrams, drawings, and specifications will be developed and provided to the BLM and CPW following pipeline design and engineering and staking and survey.

The projected workforce to construct the 4 pipelines is estimated to be 12 workers. Construction of the pipelines is expected to require approximately 20 days. Roundtrips for large trucks/semis are estimated to be 20 for the project; approximately 12 roundtrips per day by smaller trucks and worker pickups/cars are estimated for pipeline construction.

Each pipeline will be pressure tested with fresh water to locate any leaks. Fresh water will be acquired from the Town of Meeker or Town of Rangely. Water will be transported to the pipelines ROW and testing location by truck. After testing, the water will be disposed of in a BOPCO's water disposal well.

c. Power Line

Power line construction will be conducted per specifications and methods defined by WREA in their project-specific POD for the power line between the YCGP and the PWTF. ROW preparation, construction timing, worker and vehicle requirements, and safety will be addressed in the power line POD.

9. Resource Values and Environmental Concerns

Anticipated conflicts with resources and public health and safety are those identified below that pertain to the PWTF, the pipelines, and the power line:

- Air Quality - potential temporary impacts from dust during the construction of the PWTF, pipelines, and to a lesser extent, the power line.
- Paleontological Resources - potential impacts from excavation of bedrock principally during pipeline construction.
- Soils and Vegetation - potential impacts from clearing vegetation and soil excavation and short-term exposure to accelerated erosion during construction of the pipelines and power line, and from life-of-project loss of productivity beneath the surfaced portions of the PWTF. Potential for weed infestation is increased for areas of disturbed soils.
- Wildlife - potential impacts to big game, specifically to mule deer on critical winter range within which the PWTF, pipelines, and power line project components will occur. Impacts may also occur to raptors nesting near the project facilities, should construction occur during the nesting season and activities occur within the species buffered distance to the nest.
- T&E - Locations for the pipelines ROW and power line ROW may conflict with suitable and possibly occupied habitat for T&E plant species. Surveys to identify suitable and possibly occupied T&E plant habitat are to be conducted this spring within the flowering season for the plant species of concern. The proposed activities may also impact the 4 endangered Colorado River fish and the roundtail chub, a Colorado species of special concern.
- Cultural Resources - potential impacts to archaeological and/or historic sites.

- Noxious and Invasive Weeds - construction activities and new disturbance may provide opportunities for new or expanded infestation by noxious and invasive weeds. A pre-disturbance survey for noxious and invasive weeds will be conducted prior to approved construction of project facilities.

10. Stabilization, Rehabilitation, and Other Mitigations

Interim reclamation measures will be applied in compliance with the WRFO's Guide to Reclamation, dated April 2011, following construction of the PWTF, including vegetation clearing and topsoil salvage from the facility's footprint and access road off CR 20 and topsoil stockpiling on an unused portion of the PWTF and on shoulders and ditches of the PWTF's access road. Final reclamation measures will be applied in compliance with the guide following construction of the pipelines and power line, and following future decommissioning of the PWTF and access road as part of project abandonment (end of natural gas field production).

BOPCO committed to implementing the following mitigation measures as part of project implementation that have been recommended by the BLM:

- Constructing facilities outside the growing season (Oct 15-March 15) where feasible.
- Monitoring and conducting dust suppression during project development, including all construction parking and equipment areas. Only fresh water free of chemicals, oils, or solvents is to be used.
- Silt fences will be installed and maintained along boundary of occupied special status plant species habitat where appropriate.
- Native seed mixes for interim and final reclamation requested by the BLM will be applied.
- Intensive weed management program (including monitoring) for the entire extent of disturbance for the life of the project. If herbicide application becomes necessary, BOPCO must submit a separate Pesticide Use Proposal to the BLM for approval. All herbicide application associated with this project will be in compliance with DOI-BLM-CO-110-2010-0005-EA, the White River Field Office Integrated Weed Management Plan.
- WET monitoring results to be produced per requirements of the CDPHE Discharge Permit No. CO0048739 will shared with the BLM once the data is available.
- BOPCO will conduct raptor surveys prior to construction should construction be planned to occur during the nesting season.
- BOPCO accepts BLM's request for an adaptive-management based review of the project's implementation after a period of 3 to 5 years from date of initial water discharge to Yellow Creek. In addition, BOPCO will conduct an on-going evaluation of the project as it moves forward. Potential changes to project implementation will be evaluated in coordination with the BLM and implemented with BLM authorization.
- BOPCO will conduct additional cultural resources inventory to complete clearances for all lands to be disturbed that have not been previously surveyed.

BOPCO is committed to implementing BLM BMPs, including reclamation, within 6 months of pipeline installations. This can include re-spreading topsoil free of weeds to adequate depth of up to 6 inches, tilling the surface, fertilizing with Sustane 3-7-2, drill seeding/hydro-seeding with PJ Mix #3, mulching with weed free straw, and crimping the straw into the soil surface for erosion control. Seed tags would be provided to BLM within 14 days after seeding via a Sundry Notice. A diagram showing the area seeded would also be provided. If it is determined erosion could be an issue, Flexterra would be applied to control erosion. Prior to re-spreading topsoil, subsoils and substrate will be worked to re-contour disturbed areas back to the natural contours along the pipelines ROW.

Specific measures to reclaim the power line ROW after construction will be described in WREA's POD.

11. Operations and Maintenance

    a. Yellow Creek Produced Water Treatment Facility (PWTF)

The PWTF is anticipated to operate year-round, 365 days per year, for the duration of the development and operation of the Yellow Creek Gas Field and Yellow Creek Federal Unit. In accordance with the CDPHE Discharge Permit No. CO0048739, BOPCO shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances), which are installed or used by BOPCO as necessary, to achieve compliance with the conditions of the permit, including work schedules, inspections, fire controls, and contingency planning. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures for storage and use of materials/chemicals and equipment.

Anticipated rates of flow for treated water to be discharged to Yellow Creek at the outfall is 138 gallons per minute (19.3 cubic feet per minute, 0.3 cubic foot per second), which is approximately 0.2 million gallons per day, for the 6,000-barrel per day Phase I PWTF module. Each additional treatment module will incrementally increase volume treated by 6,000 barrels per day and rate of discharge by 138 gallons per minute. At final build out of the 4 phases (24,000 barrels per day) and a treated water discharge of 552 gallons per minute (77.3 cubic feet per minute, 1.3 cubic foot per second), which is approximately 0.8 million gallons per day.

Tanks located at the PWTF will serve as feedstock for the process. These tanks will be automated with sensors designed to monitor fluid levels and alert and ultimately shut-down the process if required. Tank batteries at the individual well sites will feed the tanks at the facility via the buried system of pipelines. This system is already in place and controlled and monitored via an established telemetry network. Ultimately the individual wells will be shut-in if the water system experiences prolonged curtailment. The total storage capacity of the entire produced water system upstream of the water treatment facility is 24 to 36 hours of flow. If an upset were

to occur, feed to the plant would be quickly ramped down to zero flow. All notifications of upsets and spills will be sent to the appropriate regulatory agencies per the CDPHE issued discharge permit and per BLM regulations and requirements.

All tanks holding liquid chemicals and other fluids will have zero-permeability containments sized at a minimum of 110% of the tank working volume. BOPCO will use a combination of sealed concrete and metal containers. All will be zero permeability containment structures.

Routine operational and maintenance activities will include:

- Site and access road maintenance to maintain safe access and working conditions,
- Routine inspection and maintenance (if needed) of BMPs (as outlined in BOPCO's Storm Water Management Plan for the Yellow Creek Field),
- Periodic maintenance of surface equipment, and
- Routine maintenance of existing pipelines including repairs and replacement.

No signage for access control, warning, or traffic management is proposed. The 6-acre PWTF site will be fenced to control access and prevent livestock from entering the facility. Operations personnel and visitors to the PWTF will be required to comply with BOPCO safety standards. Controls for noxious weeds will be instituted in compliance with BLM and Rio Blanco County requirements.

b. Pipelines

No new or expanded access road or roads will be needed to support pipeline construction or operations. See section 6.b above for the description of proposed hydrostatic testing and disposal of test waters. Removal and/or addition of pipe and/or pumps are not anticipated to be part of pipeline maintenance. All maintenance activities will be confined within the ROW. Noxious weeds will be controlled along the pipeline ROW by BLM approved spraying or mechanical removal. A list of noxious weeds requiring control will be compiled from BLM and Rio Blanco County. A Pesticide Use Proposal (PUP) will be submitted for approval prior to the application of herbicides, pesticides, or possibly hazardous chemicals. No toxic substances are to be used, generated, or stored on the ROW as part of pipeline operations and maintenance. As part of periodic ground inspections using CR 20 during pipeline operations, evidence of accelerated soil erosion will be recorded as well as issues related to pipeline leaks will be identified for prompt remediation. Type and frequency of inspections and monitoring for operations and maintenance, safety plans, and contingency plans will be defined prior to the pipelines being placed into service.

c. Power Line

Power line operations and maintenance will be conducted per specifications and methods defined by WREA in their forthcoming project-specific POD for the power line between the Yellow Creek Gas Plant and the Yellow Creek PWTF. ROW access; maintenance, inspections, and monitoring; weed control; and safety, fire control, and contingency plans will be addressed in the power line POD.

12. Termination and Restoration

At the end of life-of-project and termination of operations, facilities no longer needed or not desired for continued use will be decommissioned and structures will be removed, including gravel surfaces of the PWTF. Pipe will be cleaned and left in ground. Power line will be either removed or left in place as determined by the BLM. The PWTF site will be recontoured and reclaimed in a manner consistent with WRFO's reclamation guidance.

ATTACHMENTS:

Attachment A - Colorado Discharge Permit System (CDPS) Fact Sheet to Permit Number CO0048739 - BOPCO, L.P., Yellow Creek Produced Water Management Facility, Rio Blanco County.

Sheets 1 - 4

Sheet 1 Proposed R.O. Facility (PWTF) - Topographic Map

Sheet 2 Proposed R.O. Facility Pipeline (PWTF) - Plan and Profile (ROWs)

Sheet 3 Proposed R.O. Facility (PWTF) - Detail

Sheet 4 Proposed R.O. Facility (PWTF) – Conceptual Layout